



What is claimed is:

(original) A method to produce hydrogen from a catalytic reformer by reforming volatile heterocyclic compounds

which comprises:

providing said volatile heterocyclic compounds, and

producing a vapor containing said heterocyclic compounds and water vapor, and

subjecting said vapor to a catalytic reformer to produce a gas containing hydrogen and carbon monoxide, and

subjecting the previously reformed gas containing hydrogen and carbon monoxide to catalytic steam shifting to substantially convert said carbon monoxide to carbon dioxide, and

vaporizing said heterocyclic compounds and water from sensible heat of the previously steam shifted gas containing remaining carbon monoxide to form heterocyclic vapor and water vapor to form steam shifted gas reduced sensible heat, and

scrubbing the previously reduced sensible heat steam shifted gas containing hydrogen and remaining carbon monoxide, from steam shifting, in a solvent capable of dissolving carbon monoxide to form a solvent containing dissolved carbon monoxide and a gas containing hydrogen substantially devoid of carbon monoxide, and

separating the previously scrubbed gas containing hydrogen substantially devoid of carbon monoxide from the solvent containing dissolved carbon monoxide thereby producing a gas containing hydrogen substantially devoid of carbon monoxide.

2. (original) The method of claim 1 wherein said solvent capable of dissolving said carbon monoxide contains cuprous chloride in HCl

3. (original) The method of claim 1 wherein said solvent capable of dissolving said carbon monoxide contains acetic acid.

4. (original) The method of claim 1 wherein said solvent capable of dissolving carbon monoxide is selected from the organic solvent group consisting of ethyl acetate and acetic acid including an individual or a combination thereof.

5. (original) The method of claim 1 wherein said solvent capable of dissolving carbon monoxide, containing dissolved carbon monoxide, is substantially separated from dissolved carbon monoxide to provide solvent for reuse and carbon monoxide to be recycled for additional steam shifting.

6. (original) The method of claim 1 wherein said solvent capable of dissolving carbon monoxide is restrained within a vehicle.

7. (original) The method of claim 1 wherein said gas containing hydrogen, substantially devoid of carbon monoxide containing solvent and containing carbon dioxide, is scrubbed with a solution capable of separating carbon dioxide from said gas and separated from the solution containing scrubbed carbon dioxide to produce a gas containing hydrogen substantially devoid of carbon dioxide and solvent.
8. (original) The method of claim 7 wherein said solution capable of separating carbon dioxide is selected from the group consisting of aqueous bases and aqueous salts including an individual or a combination thereof.
9. (original) The method of claim 7 wherein said solution capable of separating carbon dioxide contains salts derived from said solvent.
10. (original) The method of claim 7 wherein the previously separated solution capable of separating carbon dioxide, containing scrubbed carbon dioxide, gaseous carbon dioxide is substantially released from the solution to furnish a solution for recycle capable of separating carbon dioxide.
11. (original) The method of claim 7 wherein said gas containing hydrogen substantially devoid of carbon monoxide and substantially devoid of carbon dioxide substantially devoid of solvent supplies hydrogen to power a fuel cell located within a vehicle.
12. (original) The method of claim 7 wherein said gas containing hydrogen substantially devoid of carbon monoxide and substantially devoid of carbon dioxide substantially devoid of solvent containing hydrogen is concentrated by an adsorbent selected from the group consisting of activated charcoal and structured carbon including an individual or a combination thereof.
13. (original) The method of claim 12 wherein the adsorbed hydrogen is released at a rate substantially regulated upon demand.
14. (original) The method of claim 1 wherein the rate of said reformer gas is substantially regulated upon demand.
15. (original) The method of claim 1 wherein said heterocyclic vapor and water vapor are subjected to temperature control to sustain production of hydrogen.
16. (original) The method of claim 1 wherein the catalysts for reforming and catalysts for steam shifting are combined.
17. (original) The method of claim 1 wherein said volatile heterocyclic compounds are provided by acidic hydrolysis within a biomass.